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Latest SOSCOE Build Serves as Backbone to U.S. Army Increment 1 Testing

July 19, 2010 – The U.S. Army’s Program Executive Office Integration (PEO-I) recently delivered and demonstrated advanced ‘middleware’ capabilities, which will provide enhanced network capabilities to the Army’s Infantry Brigade Combat Teams. SOSCOE (System of Systems Common Operating Environment) is the middleware that forms the backbone of the Increment 1 tactical network – a layered system of interconnected computers, software, radios and sensors delivered in the form of Network Integration Kits (NIKs). The NIK receives and passes sensor data from unmanned systems to the Soldier—a capability currently not available to Soldiers in the field. The latest software drop, called Build 2.7, is the final installment that has brought the NIK to full operational capability and will support Soldier-driven testing and evaluations of Increment 1 in September 2010 at White Sands Missile Range, N.M.

Middleware provides a link that connects separate software applications using a common connecting mechanism. It allows data to pass seamlessly between the two applications, even on application software that may be working on different operating systems. SOSCOE was developed to be the Army’s ‘tactical’ middleware designed to operate in an environment where Information Technology (IT) infrastructure does not exist – providing increased Situational Awareness (SA) and network access for Soldiers and Command and Control (C2) on the move. Using SOSCOE as a flexible middleware, Soldiers are able to respond to evolving threats by creatively applying their technical knowledge with IT to modify application behaviors in the field. The latest capabilities extend core C2/SA functions and show increased interoperability with the Army’s computer and network systems.

“Integrating current systems with future capabilities is a key challenge for System of System Engineering,” said LTC Michael Murrah, Product Manager Software Integration. “Middleware is a software technology used by commercial industry to solve these problems, and we need middleware specifically tailored to military radios and computers carried by our Soldiers.”

The latest SOSCOE build offers key upgrades from what Soldiers have previously tested. Through software upgrades, many based on Soldier feedback, SOSCOE Build 2.7 addresses cyber security requirements and provides more reliable real-time performance while securely operating as part of a mobile ad hoc network.

As part of Increment 1 evaluations and multi-national network experiments, SOSCOE has demonstrated it can run on existing Army computers using radio and satellite networks currently fielded in Afghanistan and Iraq. In addition to testing as part of Increment 1, PEO-I (located at Aberdeen Proving Ground, MD) recently demonstrated how these capabilities are carried out in a Joint Network Environment as part of the Joint Forces Command Joint Users Interoperability Communications Exercise (JUICE). Capabilities demonstrated include Increment 1 Chat/Whiteboard/File Transfer using SOSCOE and NIK Collaboration Client across geographically dispersed sites with multiple networks. The accelerated chat capability will provide useful functionality to the warfighter sooner than would be possible using existing programs. During portions of the exercise, SOSCOE acted as a middleware interface for both



Future Force and Current Force Systems and demonstrated flexibility to run on commodity hardware.

Developers have also begun incorporating SOSCOE on commercial handheld devices to assess the potential of using the middleware to allow Soldiers to easily download and create military applications on these devices. Recently, a team of cadets from the U.S. Military Academy at West Point developed two applications for an Android handheld device running SOSCOE that could talk over secure communications to a militarized computer also running SOSCOE. In 12 hours, the group developed two applications, one for medical evacuation requests and the other to report a chemical warfare strike. Because of SOSCOE, these rapidly-developed applications were able to integrate with both new and existing battlefield systems.

The Army is considering adopting SOSCOE as standard middleware to tie together existing military applications with future capabilities. Soldiers are currently testing SOSCOE-based systems at White Sands Missile Range, N.M.

“Technologies like SOSCOE that reuse existing investments while enabling future capabilities will help the Army support current operations in Afghanistan while simultaneously evolving to meet new threats,” said Murrah.